

SHADE, DIFFUSE UV AND VITAMIN D

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Purpose of study:

The health effects of solar UV radiation vary significantly, from assisting calcium absorption in humans due to the initiation of the synthesis of vitamin D to the severe degradation of body tissue. The good effects are relatively few, but they are essential to a persons well being. It is well known that exposure to small amounts of UVB radiation are beneficial for the human body and important in the production of vitamin D, whereas excessive exposure to sunlight is known to cause skin cancer, DNA damage, immune suppression, erythema and sun-related eye disorders. It is estimated that approximately 90-95% of our vitamin D requirement comes from exposure to the sun. The synthesis of pre-vitamin D₃ is initiated through exposure of human skin to UVB radiation. The longer wavelength UVA radiation plays no part in the synthesis of pre-vitamin D₃ in humans. Research shows that UVA plays a significant role in human skin carcinogenesis. Therefore, reducing personal exposures to UVA radiation while still receiving sufficient amounts of the UVB wavelengths required to produce recommended vitamin D levels is essential. Therefore, optimising exposure to solar UV radiation is absolutely necessary.

Conclusions:

At certain latitudes, due to the higher relative proportions of UVB compared to the UVA in shade, shade environments and diffuse UV may play an important role in providing the human body with adequate levels of UVB radiation for vitamin D production without experiencing the high levels of damaging UVA observed in full sun.

Preferred category:

Population Health

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